

## **REMARKS**

### **I. Introduction.**

Claims 14, 16-21, 23-26, 38 and 39 are currently pending in this Application, of which claims 14 and 21 are independent. Claims 14, 17, and 21 have been amended. Claim 22 has been cancelled without prejudice or disclaimer. Applicant respectfully submits that all pending claims are in condition for allowance.

### **II. Rejections under 35 U.S.C. §102(b).**

Claims 14, 16, 17, 19, 20 and 38 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. patent No. 4,767,230 to Leas, Jr. (hereinafter “*Leas*”). Claims 14, 16, 18 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. patent No. 3,400,923 to Howie et al. (hereinafter “*Howie*”). Claims 21, 22, 26 and 39 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. patent No. 6,358,467 to Mordue (hereinafter “*Mordue* ‘467”). At least for the reasons discussed below, Applicant respectfully submits that the pending claims patentably distinguish over *Leas*, *Howie* and *Mordue* ‘467 and request withdrawal of the rejections under 35 U.S.C. §102 based on the following.

#### **A. Leas.**

*Leas* does not disclose the limitations of independent claim 14. In particular, *Leas* does not disclose or even suggest a coupling having a bore with an opening for receiving a shaft, the bore comprising: (1) a tapered, non-threaded end distal to the opening, (2) a threaded end proximal to the opening, and (3) an end distal to the opening that comprises a passage for transferring gas.

As shown in Figure 2 of *Leas*, the coupling 10 receives the shaft 16 through the opening in the coupling at the right-most side of the coupling. This opening (and the passage receiving the shaft) is smooth and non-threaded. The threaded end of the shaft (22) extends through a threaded portion (44) of the coupling 10 at the left-most side of the coupling and engages a nut 24 which secures “shaft coupling 10 to the tapered end 20 of the propeller shaft 16.” Col. 4, lines 9-15.

Thus, contrary to the claimed invention, the coupling in *Leas*: (1) has a threaded end distal to the opening where the shaft is received, (2) has a non-threaded end proximal to the opening, and (3) does not disclose a passage in the distal end for transferring gas. The remaining

rejected claims (i.e., claims 16, 17, 19, 20 and 38) are each dependent on independent claim 14 and are thus not anticipated by *Leas* for the same reasons set forth above.

**B. Howie.**

*Howie* also does not disclose the limitations of independent claim 14. In particular, *Howie* does not disclose or suggest a coupling having a bore with an opening for receiving a shaft, the bore comprising an end distal to the opening that comprises a passage for transferring gas. The device in *Howie* includes “a rotatable member 51, which includes a cylindrical male thread 63 that engages with a female threaded portion of vertical shaft 66.” Col. 10, lines 10-16. Thus, the device in *Howie* does not disclose a coupling member with a bore as recited in claims 14 and 21, rather the two shafts (51 and 66) are simply screwed together.

In addition to lacking a coupling member, neither shafts 51 or 66 (or the mating thereof) provide a passage in the distal end of a bore for transferring gas. To the contrary, the upper portion of the shaft 66 (shown in the shaded portion in Figure 1) into which shaft 51 screws into, is solid. Additionally, the purpose of the “decomposer” in *Howie* is “the removal and separation of dross from molten aluminum” (col. 1, lines 15-16). No portion of *Howie* discloses or suggests using the “decomposer” for transferring gas, nor is it clear how it could be modified to do so. The remaining rejected claims (i.e., claims 16, 18, and 19) are each dependent on independent claim 14 and are thus not anticipated by *Howie* for the same reasons set forth above.

**C. Mordue ‘467.**

*Mordue ‘467* does not disclose the limitations of independent claim 21. In particular, *Mordue ‘467* does not disclose or even suggest a rotary degasser with a coupling member comprising a bore having an opening for receiving a shaft, the bore comprising: (1) a tapered, non-threaded end distal to the opening and (2) a threaded end proximal to the opening.

The coupling 44 in *Mordue ‘467* (referenced by the Office Action) includes a “mouth 54” for receiving a shaft in cavity 52. Col. 6, lines 7-11 and Figure 4A. No portion of the cavity 52, including the end proximal to the mouth 54, is threaded as required by independent claim 21. Additionally, while the end of the coupling 44 proximal to the mouth 54 has a 30-degree tapered portion, the rest of the cavity 52 is of uniform diameter that immediately transitions to a smaller diameter in gas passage 58, but does not have a tapered distal end as does the bore in the claimed invention.

Claim 22 is cancelled by this amendment without prejudice or disclaimer. The remaining rejected claims (i.e., claims 26 and 29) are each dependent on independent claim 14 and are thus not anticipated by *Mordue* '467 for the same reasons set forth above.

### **III. Rejections under 35 U.S.C. §103(a).**

Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Mordue* '467 in view of *Howie*. As discussed above, *Mordue* '467 does not disclose the limitations of independent claim 21, upon which claims 23-25 depend. Additionally, an invention cannot be deemed obvious under 35 U.S.C §103 where one or more references in a proposed combination teach away from making the combination. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984) (where a proposed modification would render the invention disclosed in a cited reference unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the modification); *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353 at 1360 (Fed. Cir. 1999) (“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path taken by the applicant.”).

Here, the Office Action proposes combining the threaded end (63) of the shaft 66 in *Howie* to supply the limitation of a threaded end proximal to the mouth 54 of coupling 44 in *Mordue* '467. However, *Mordue* '467 explicitly and extensively teaches away from the use of threads in the coupling, referencing a variety of problems such as a “weak coupling” and difficulty in removing pieces of a shaft from threaded couplings when the shaft breaks. *See* Col. 2, lines 1-59 and Figures 1A and 1B.

Additionally, the use of threads in the coupling '467 would conflict with, and negate stated advantages of, *Mordue*'s use of the locking members 60 to secure the shaft to the coupling 44. *See* col. 6, lines 17-50; *see also* col. 6, line 66- col. 7, line 4 (“Less than one third of a rotation is required in order to accomplish a tight locking relation. This is a significant advantage over known coupling designs which require several rotations in order to couple the shaft to the drive system”).

Accordingly, Applicant respectfully submits the claimed invention is not rendered obvious by *Howie* or *Mordue* '467 (whether alone or in combination) and requests withdrawal of the rejections under 35 U.S.C. §103.

### CONCLUSION

Reconsideration is respectfully requested. Applicant respectfully submits that this case is in condition for allowance and respectfully requests withdrawal of the rejections and allowance of the pending claims.

The Examiner is invited to telephone the undersigned at the telephone number listed below if it would in any way advance prosecution of this case.

Respectfully submitted,

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